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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/766,532 | 01/28/2004 | Tsunehiko Nakamura | 81880.0113 | 2226 |

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| EXAMINER | |
|---|---|
| DANG, ROBERT TRONG | |
| **ART UNIT** | **PAPER NUMBER** |
| 2838 | |

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

BK

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/766,532 | NAKAMURA, TSUNEHIKO | |
| | Examiner | Art Unit | |
| | Robert T. Dang | 2838 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2004* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/28/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Weldon (6108189).

As to claim 1, Weldon discloses in figures 3a-3b and 4a-4b, an electrostatic chuck (100) comprising: a circular ceramic plate having an electrostatic attractive electrode (110); a mounting surface (105) for supporting a wafer formed on one of the main surfaces of the circular ceramic plate an annular gas groove (150) (see col. 5, lines 17-19) formed on the periphery of the mounting surface in the form of concentric circles and a gas inlet (202) which communicates with the annular gas groove; and a circular gas recess (115) formed inside the circular ceramic plate, and a gas inlet (202) which communicates with the circular gas recess, wherein the annular gas groove and the circular gas recess are independently separated from each other by a first annular rib protrusion (200) with a plurality of dotted protrusions (150) being disposed within the circular gas recess. Weldon also discloses in figure 5C (200B) where a plurality of dotted protrusions being disposed within the annular gas groove.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lue et al (5761023) in view of Weldon (6108189).

As to claim 1, Lue discloses in figures 3 and 4, an electrostatic chuck comprising: a circular ceramic plate (71) having an electrostatic attractive electrode (84); a mounting surface (74) for supporting a wafer formed on one of the main surfaces of the circular ceramic plate (see col. 9, lines 11-20); an annular gas groove (76) formed on the periphery of the mounting surface in the form of concentric circles and a gas inlet (78) which communicates with the annular gas groove (see col. 6, lines 36-39); and a circular gas recess (68) formed inside the circular ceramic plate, and a gas inlet (78) which communicates with the circular gas recess, wherein the annular gas groove and the circular gas recess are independently separated from each other by a first annular rib protrusion (70) with a plurality of dotted protrusions (66) being disposed within the circular gas recess. However, he does not disclose the plurality of dotted protrusions being disclosed in the annular gas groove. Weldon discloses in figure 4a, where a

plurality of dotted protrusions being disposed within the annular gas groove. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device and add the plurality of dotted protrusions within the annular gas groove in order to provide inert gas having different pressures to the various gas inlets in order to prevent deformation of the wafer.

As to claim 2, Lue discloses in figure 3, wherein the circular gas recess has a diameter, which is set to 70 to 95% of the outer diameter of the mounting surface (74).

As to claim 4, Lue discloses in figure 3, wherein: the ratio S1/S2 of the area S1 of the circular gas recess to a total area S2 of the upper surfaces of the dotted protrusions disposed inside the circular gas recess is set in a range of 1 to 5; and the ratio S3/S4 of an area S3 of the annular gas groove to a total area S4 of the upper surfaces of the dotted protrusions formed inside the annular gas groove is set in a range of 1 to 5. The figure appears that if 4 dotted protrusions were put in each set of 4 dotted protrusions to fill the recess so that the entire ratio would be 1:1. Thus, without the 4 added squares, the ratio depicted is about 1:2. Or, it would have been obvious to make it so, to ensure good suction.

As to claim 5, Lue discloses in figure 3, wherein the circular ceramic plate has a heating element for heating the wafer buried in the ceramic plate or attached to the other main surface of the ceramic plate (see col. 4, lines 11-19)

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lue et al (5761023) in view of Weldon (6108189) as applied to claim 1 above, and further in view of Chen et al (2002/0135968 A1).

As to claim 3, Lue, in view of Weldon discloses an electrostatic chuck including all the limitations of claim 1, but does not disclose the first annular rib protrusion having a width in the range of 0.5 to 5 mm or a second annular rib protrusion having a width in the range of 1 to 5 mm. Chen discloses in figure 1, a first and second annular rib protrusion with widths that range from 0.5-5 mm and 1-5mm respectively (see page 2, paragraph [0028]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device and add a first and second annular rib protrusion with widths that range from 0.5-5 mm and 1-5mm respectively in order to better serve as a thermal transfer medium.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Dang whose telephone number is 571-272-8326. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl D. Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

KARL EASTHOM
SUPERVISORY PATENT EXAMINER

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RTD